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<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/808,010	KANE, DANIEL JAMES	
	Examiner	Art Unit	
	Michael A. Lyons	2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**  
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 11 April 2006.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### **EXAMINER'S AMENDMENT AND STATEMENT OF REASONS FOR ALLOWANCE**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Daniel Kane on August 15, 2006.

The application has been amended as follows:

Claims 1 and 10 are amended as follows, while claims 22-25 are newly added.

1. A method for real-time measurement of ultrashort laser pulses comprising:  
recording in a computer measured frequency resolved optical gating (FROG) trace data generated by processing a pulse in a FROG device;  
processing the measured FROG trace to perform real time phase retrieval and generating in real time a retrieved pulse from the measured FROG trace;  
displaying the retrieved pulse; [and]  
generating in real time a feedback parameter providing information characterizing the real time phase retrieval[.]; and  
providing the feedback parameter to a user or to a FROG process.

10. A method of performing real time phase retrieval processing of frequency resolved optical gating (FROG) traces, the method comprising:

receiving as input a measured FROG trace data set, the FROG trace data set generated by processing a pulse in a FROG device;

processing the measured FROG trace data set to perform real time phase retrieval and  
generating in real time a retrieved pulse from the measured FROG trace;

generating displaces of the retrieved pulse at a rate of 3 Hz or faster; [and]

generating a feedback parameter providing information characterizing the real time phase  
retrieval[.]; and

providing the feedback parameter to a use or a FROG retrieval.

22. The method of claim 1 where the feedback parameter is provided to the use and to a  
FROG process.

23. The method of claim 1 where the feedback parameter is provided to the user through  
a display.

24. The method of claim 10 where the feedback parameter is provided to the user and to  
a FROG retrieval.

25. The method of claim 10 where the feedback parameter is provided to the user  
through a display.

***Allowable Subject Matter***

**Claims 1-25 are allowed in view of the prior art.**

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken either alone or in combination, fails to  
disclose or render obvious a method for real-time measurement of ultrashort laser pulses, the  
method comprising recording frequency resolved optical gating (FROG) trace data that is  
generated by processing a pulse in a FROG device, processing the trace to perform real time  
phase retrieval and generating in real time a retrieved pulse from the trace, displaying the pulse,

and generating a feedback parameter in real time that provides information characterizing the real time retrieval, in combination with the rest of the limitations of the above claim.

As to claim 10, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of performing real time phase retrieval processing of FROG traces, the method comprising receiving as an input a measured FROG trace data set that is generated by processing a pulse in a FROG device, processing the data set to perform real time phase retrieval and generating in real time a retrieved pulse from the trace, generating displays of the pulse at rates of 3 Hz or faster, and generating a feedback parameter that provides information characterizing the real time phase retrieval, in combination with the rest of the limitations of the above claim.

As to claim 13, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method of performing real time phase retrieval processing of FROG traces, the method comprising receiving as an input a measured FROG trace data set that is generated by processing a pulse in a FROG device, processing the data set to perform real time phase retrieval and generating in real time a retrieved pulse from the trace, generating a display of the pulse in real time, and generating a feedback parameter that provides information characterizing the real time phase retrieval and using the feedback parameter to perform a control operation, in combination with the rest of the limitations of the above claim.

In particular with regards to the above claims, please see the applicant's arguments dated April 11, 2006 in response to the previous Office Action of record that lay out detailed reasons as to the allowability of the claims in view of the prior art.

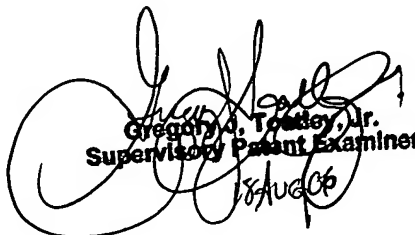
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAL  
August 16, 2006

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
18 AUG 06